

**APPROXIMATE SOLUTION OF NONLINEAR FRACTIONAL INTEGRO-DIFFERENTIAL  
EQUATIONS BY HE'S HOMOTOPY PERTURBATION METHOD AND THE  
MODIFICATION OF HE'S VARIATIONAL ITERATION METHOD**

**M.H.SALEH, D.SH.MOHAMED, M.H.AHMED & A.K.FARHOOD**

Mathematics Department, Faculty of Science Zagazig University, Zagazig, Egypt

**ABSTRACT**

In this paper, we compare the modification of He's variational iteration method (MVIM), and He's homotopy perturbation method (HPM), in order to obtain the approximate solution of nonlinear fractional integro-differential equations of Volterra and Fredholm integro-differential equations, we present some examples to find out accuracy of the methods.

**KEYWORDS:** Fractional Integro-Differential Equations, Caputo Derivative, Modification of He's variational iteration Method, Homotopy Perturbation Method